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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1 (currently amended): A tunable laser cavity sensor chip comprising:

(a) a reference laser and a sensor laser, each comprising a waveguide having a gain section, opposing mirrors including a partially transmissive mirror, and a coherent light beam output section, at least one of the waveguides having a phase control section, the coherent light beam output sections being joined to enable coherent light outputs of the reference and sensor lasers to interfere;

(b) a sensor region separate and physically spaced from said phase control section formed through and exposing the evanescent optical field of the sensor laser, for receiving a sample to be diagnosed; and

(c) a heterodyne detector at the juncture of the reference and sensor coherent light output sections for detecting a change in the frequency of the coherent light output from the sensor laser resulting from a change in the index of refraction of fluid in the sensor cavity.

2 (original): The chip device of claim 1 wherein the mirror on each laser opposing the partially transmissive mirror is a facet mirror.

3 (original): The chip device of claim 1 wherein the partially transmissive mirror and the opposing mirror are both sampled-grating mirrors having different sampling periods.

4 (original): The chip device of claim 1 in which said exposed evanescent field region is between the gain section and one of the mirrors of the sensor laser.

5 (original): The chip device of claim 1 in which the sensor laser includes said phase control section.